103201 232388

TEST: Avian Reproduction Study

SPECIES: Bobwhite Quail

RESULTS: Muscalure was fed to mature Bobwhite Quail at dietary concentrations of 2.0 ppm and 20.0 ppm throughout a One-Generation Reproduction Study and had no statistically significant effect on the reproductive success of the birds.

ADDITIONAL DATA: Table One

	Controls	Muscalure (ppm) 2.0	20.0
Eggs Laid	833	877	722
Eggs Cracked	23	24	19
Eggs Set*	763	806	657
Viable Embryos	589	631	525
Live Three-Week Embryos	583	625	522
Normal Hatchlings	506	545	444
14-Day-Old Survivors	476	498	431

*Excludes those cracked and those removed for eggshell thickness analysis. The above differences were not statistically significant (p 0.05).

Table Two (See following page)

CHEMICAL: Z-9-Tricosene (98.7% ai)

TITLE: One Generation Reproduction Study--Bobwhite Quail Muscalure

AUTHOR: Wildlife Research Division, Truslow Farms, Inc.

STUDY DATE: April 29, 1973

ACCESSION NO.: 232388

REGISTRANT: Farnam Company, Inc.

VALIDATION CATEGORY: CORE

ADDITIONAL DATA (CONT.): Table Two

	Expected Values	Controls	Muscalure (ppm) 2.0	Muscalure (ppm) 20.0
Eggs Laid Per Hen in Eight Weeks	28-38	34.7	36.5	30.1
Eggs Cracked Of Eggs Laid (%)	0.6-2.0	2.8	2.7	2.6
Viable Embryos Of Eggs Set (%)	75-90	77	78	80
Live Three-Week Embryos Of Viable Eggs (%)	97-99	99	99	99
Normal Hatchlings of Live Three-Week Embryos (%)	70-99	87	87	85
14-Day-Old Survivors Of Normal Hatchlings (%)	75-90	94	91	97
14-Day-Old Survivors Per Hen	11-14	19.8	20.8	18.0

Statistical analysis based on data in Table One.
The above differences were not statistically sighnificant ($p < 0.05$).

ADDITIONAL DATA (CONT.): Table Three

	Control	Muscalure (ppm) 2.0	20.0
Number of Eggs Analyzed	48	48	48
Mean Shell Thickness (mm)	0.204	0.204	0.204

The above differences were not statistically significant ($p<0.05$).

Additional Notes: Protocol differed from that suggested in the guidelines as follows: Body weights were measured at test initiation and termination and not at weeks 2,4, 6 and 8 as suggested in the recommended protocol. Temperature was maintained at 60°F (15.5°C) during the first six weeks and then 72°F (22°C) for the remainder of the study. Eggs were incubated at 37.5°C (99.2°F).

None of these differences were considered serious enough to invalidate the study. Parameters of egg production, viability, hatchability and survival were all within a range of expected values.

AVIAN REPRODUCTION STUDY: BOBWHITE QUAIL

Summary of Raw Data--Statistical Analysis

Eggs Laid	$\bar{x}$	F Test
Control	69.42	1.29 3.23
2.0 ppm	73.0	Not Significant
20.0 ppm	60.17	(P 0.05)
Eggs Cracked	$\bar{x}$	F Test
Control	1.91	0.14 3.32
2.0 ppm	2.0	Not Significant
20.0 ppm	1.58	(P 0.05)
Eggs Set	$\bar{x}$	F Test
Control	63.58	1.25 3.32
2.0 ppm	67.17	Not Significant
20.0 ppm	54.75	(p 0.05)
Viable Embryos	$\bar{x}$	F Test
Control	49.08	0.48 3.23
2.0 ppm	52.58	Not Significant
20.0 ppm	43.67	(p 0.05)
Live Three- Week Embryos	$\bar{x}$	F Test
Control	48.58	0.44 3.23
2.0 ppm	52.08	Not Significant
20.0 ppm	43.50	(p 0.05)

Normal Hatchlings	$\bar{x}$	F Test
Control	42.17	0.58 3.23
2.0 ppm	45.83	Not Significant
20.0 ppm	37.17	(p 0.05)

14 Day Survivors	$\bar{x}$	F Test
Control	59.5	0.699 3.47
2.0 ppm	62.25	Not Significant
20.0 ppm	53.88	(p 0.05)

Egg Shell Thickness	$\bar{x}$	F Test
Control	0.2036	0.0841 3.23
2.0 ppm	0.2038	Not Significant
20.0 ppm	0.2024	(p 0.05)

FARNAM, INC. FINK (1975)

BOBWHITE

EGGS LAID

CONTROLS
71.
75.
83.
83.
79.
23.
80.
73.
85.
71.
91.
19.

69.41666667 $\bar{X}$
502.2430556 S.D.

2 ppm
76.
67.
77.
93.
30.
82.
73.
87.
66.
74.
94.
57.

73. $\bar{X}$
277.8333333 SD

20 ppm
37.
55.
55.
70.
77.
88.
43.
40.
33.
64.
88.
72.

60.16666667 $\bar{X}$
342.8055556 SD

1.288679303 F
NUM. D.F. 2. # DEG. FR.
DENOM D.F. 33. S.S.R.

13474.58333 ERROR S.S.
1052.388889 TREAT S.S.
14526.97222 TOT S.S.

n.s. @ .05

1.2886 < 3.23 -

Reviewed by Betty 8/31/75

Eggs SET: BWQ

66.
70.
76.
76.
75.
18.
76.
68.
79.
59.
85.
15.

63.58333333
484.5763889

71.
62.
72.
88.
26.
75.
65.
83.
61.
67.
90.
46.

67.16666667
293.1388889

33.
51.
51.
63.
72.
79.
38.
36.
28.
60.
80.
66.

54.75
299.5208333

1.251099135 < 3.23
2.
n.s. @ .05 33.
n.s. @ .1 either
12926.83333
980.1666665
13907.

VIABLE EMBRYOS

BOBWHITE QUAIL

CONTROL
27.
55.
73.
64.
53.
1.
60.
65.
71.
38.
81.
1.

49.08333333
662.5763889

20 ppm
71. (72)
27.
18.
48.
58.
57.
57.
30.
31.
15.
52.
60.

43.66666667
314.0555556

2 ppm
36.
31.
62.
81.
23.
65.
54.
80.
47.
35.
83.
34.

52.58333333
419.2430556

.4771449607 < 3.23
2.
33. n.s. @ .05

16750.5
484.3888888
17234.88889

Live three week embryos

Control

26.
55.
73.
62.
53.
1.
58.
65.
71.
37.
81.
1.

48.58333333
660.0763889

2 ppm

36.
30.
62.
79.
23.
65.
54.
80.
47.
35.
82.
32.

52.08333333
415.0763889

20 ppm

27.
18.
47.
58.
57.
57.
30.
30.
15.
52.
72.
59.

43.5
317.5833333

0.441362426 < 3.23
2.
33. ∴ n.s. @ .05

16712.83333
447.0555555
17159.88889

Normal Hatchlings

Control

19.
46.
65.
59.
42.
1.
51.
57.
66.
31.
68.
1.

42.16666667
533.6388889

2 ppm

32.
26.
56.
66.
21.
59.
51.
72.
36.
34.
75.
22.

45.83333333
354.3055556

20 ppm

24.
18.
41.
54.
47.
48.
26.
29.
13.
47.
49.
50.

37.16666667
185.8055556

.5816582588 < 3.23
2.
33. ∴ n.s. @ .05

12885.
454.2222221
13339.22222

14 day Survivors.

Control

32.
36.
54.
88.
76.
67.
58.
65.

59.5
314.

2 ppm

49.
46.
59.
68.
62.
76.
72.
66.

62.25
97.6875

20 ppm

35.
47.
63.
64.
72.
59.
44.
47.

53.875
136.109375

.6986223224 < 3.47
2.
21. ∴ n.s. @ .05

4382.375
291.5833333
4673.958333

FARNAM, INC.
BOBWHITE (FINK, 1975)
(EGGS CRACKED)

Egg shell thickness
BWQ

C

1.	
1.	
3.	
3.	
0.	0.204
1.	0.2
0.	0.208
1.	0.21
2.	0.204
8.	0.199
2.	0.206
1.	0.201
	0.208
	0.201
	0.194
	0.209
1.916666667	
4.243055556	

2 ppm

1.	
1.	.2036666667
1.	.0000212222
1.	
0.	0.211
3.	0.208
4.	0.201
0.	0.185
1.	0.21
3.	0.204
1.	0.205
8.	0.196
	0.209
2.	0.199
4.666666667	0.214
	0.203

20 ppm

0.	
0.	0.20375
1.	.0000571875
3.	
1.	0.221
5.	0.215
1.	0.198
0.	0.22
2.	0.19
0.	0.2
4.	0.2
2.	0.21
	0.194
	0.199
	0.203
	0.179
1.583333333	
2.576388889	
.1396614268	.2024166667
2.	.0001405764
n.s@ .05 33.	

< 3.23

.0840679655 — F
2. — N df
33. — 0 df

137.8333333
1.166666666
139.

.0026278333 ESS
.0000133889 Tr. SS
.0026412222 TOT. SS

F table value = 3.23
(p = .05)